



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8960

MAR 03 2020

Ms. Julie Espy  
Director  
Division of Environmental Assessment & Restoration  
Florida Department of Environmental Protection  
Mail Station 3000  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Dear Ms. Espy:

The U.S. Environmental Protection Agency has completed its water quality standards review of the document titled *Nutrient TMDLs for Coastal Springs of Pasco and Hernando Counties: Magnolia–Aripeka Springs Group, Jenkins Creek Spring, Wilderness–Mud–Salt Springs Group and Documentation in Support of Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion (WBIDs<sup>1</sup> 1391B, 1389, and 1382G)*. The Florida Department of Environmental Protection (FDEP) submitted the Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group Total Maximum Daily Loads (TMDLs) and revised Chapter 62-304, Florida Administrative Code (F.A.C.),<sup>2</sup> including the numeric nutrient criteria (NNC) for the subject water, in a letter to the EPA dated January 31, 2020, as TMDLs and as new or revised water quality standards (WQS) with the necessary supporting documentation and certification by FDEP General Counsel, pursuant to Title 40 of the Code of Federal Regulations part 131.

The NNC were adopted under Chapter 62-304.645(26)-(28) as site-specific numeric interpretations of paragraph 62-302.530(48)(b). As referenced in paragraph 62-302.531(2)(a), the FDEP intends for the submitted NNC to serve in place of the otherwise applicable criteria for springs set out in paragraph 62-302.531(2)(b). The nitrate TMDLs for Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group would also constitute a site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), for these waterbodies.

The FDEP submitted the Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group TMDLs to the EPA for review pursuant to both Clean Water Act (CWA) sections 303(c) and 303(d) since the TMDLs will also act as Hierarchy 1 (H1) site-specific interpretations of the State's narrative nutrient criterion pursuant to 62-302.531(2)(a)1.a. The enclosed WQS decision document summarizes the EPA's review and approval of the WQS contained in the TMDL document. The EPA's decision document memorializes the EPA's review and approval of the WQS, in accordance with section 303(c) of the CWA; nothing herein should be construed to constitute a review or approval of the TMDL submitted pursuant to section 303(d) of the CWA. The EPA will conduct its review of the TMDL following this approval of the WQS.


<sup>1</sup> WBID refers to **waterbody identification**

<sup>2</sup> Unless otherwise stated, all rule and subsection citations are to provisions in the Florida Administrative Code.  
Internet Address (URL) • <http://www.epa.gov>


In accordance with section 303(c) of the CWA, I am hereby approving the revised WQS for nitrate. Any other criteria applicable to these waterbodies remain in effect. The requirements of paragraph 62-302.530(48)(a) also remain applicable.

If you have any comments or questions relating to the approval of the H1 WQS, please contact me at (404) 562-9345, or have a member of your staff contact Dr. Katherine Snyder in the WQS program at (404) 562-9840.

Sincerely,



Jeaneanne M. Gettle, Director  
Water Division



Enclosure

cc: Mr. Kenneth Hayman, FDEP  
Mr. Daryll Joyner, FDEP  
Mr. Ansel Bubel, FDEP

# **Florida Numeric Interpretation of the Narrative Nutrient Water Quality Criterion Through Total Maximum Daily Loads (TMDLs) to Establish a Hierarchy 1 (H1): Water Quality Standards (WQS) Decision Document**

**H1:** Nutrient TMDLs for Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group (waterbody identification (WBID) 1391B, 1389, and 1382G)

**Location:** Pasco and Hernando Counties, Florida

**Status:** Final

**Criteria Parameter(s):** The site-specific nitrate criterion for WBIDs 1391B, 1389, and 1382G is 0.23 mg/L, expressed as an annual arithmetic average not to be exceeded in any year.

**Background:** The Florida Department of Environmental Protection (FDEP) submitted the final H1 for the *Nutrient TMDLs for Coastal Springs of Pasco and Hernando Counties: Magnolia–Aripeka Springs Group, Jenkins Creek Spring, Wilderness–Mud–Salt Springs Group and Documentation in Support of Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion* (the “report”) by letter dated January 31, 2020. The final report dated July 2016, includes H1 target concentrations and loads. A final report was received by the EPA on January 31, 2020.

The submission included:

- Submittal letter
- Nutrient TMDL for Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group and Documentation in Support of the Development of Site-Specific Numeric Interpretations of the Narrative Nutrient Criterion
- Documents related to Public Workshop
- Documents related to Public Hearing
- Documents related to Public Notice for Rulemaking and Rule Adoption
- Public Comments Received

This document explains how the submission meets the Clean Water Act (CWA) statutory requirements for the approval of WQS under section 303(c) and the EPA’s implementing regulations in Title 40 of the Code of Federal Regulations (40 C.F.R.) part 131. The decision document memorializes the EPA’s review and approval of the WQS, in accordance with section 303(c) of the CWA; nothing herein should be construed to constitute a review or approval of a TMDL pursuant to section 303(d) of the CWA.

**WQS REVIEWER:** Katherine Snyder, WQS Coordinator, [snyder.katherine@epa.gov](mailto:snyder.katherine@epa.gov)

## EPA HIERARCHY 1 REVIEW DOCUMENT - WQS

Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group  
(WBID 1391B, 1389, and 1382G)/ Springs Coast Basin – Nutrients

*This document contains the EPA's review of the above-referenced H1. This review document includes WQS review guidelines that state or summarize currently effective statutory and regulatory requirements applicable to this approval action. Review guidelines are not themselves regulations. Any differences between review guidelines and the EPA's implementing regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable H1s. The sections in regular type reflect the EPA's analysis of the state's compliance with these requirements.*

### I. WQS Decision – Supporting Rationale

*Section 303(c) of the CWA and the EPA's implementing regulations at 40 C.F.R. part 131 describe the statutory and regulatory requirements for approvable WQS. Set out below are the requirements for WQS submissions, under the CWA and the regulations. The information identified below is necessary for the EPA to determine if a submitted WQS meets the requirements of the CWA and, therefore, may be approved by the EPA.*

#### 1. Use Designations

*Section 131.10(a) provides that each state must specify appropriate water uses to be achieved and protected. The classification of the waters of the state must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. In no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.*

**Assessment:** Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group are classified as Class III Freshwater (fish consumption; recreation; and propagation and maintenance of a healthy, well-balanced population of fish and wildlife).

#### 2. Protection of Downstream Uses

*Section 131.10(b) provides that in designating uses of a waterbody and the appropriate criteria for those uses, the state shall take into consideration the WQS of downstream waters and shall ensure that its WQS provide for the attainment and maintenance of the WQS of downstream waters.*

Rule 62-302.531(4) of the Florida Administrative Code (F.A.C.) requires that downstream uses be protected. An imbalance of flora occurring in the Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group is attributable primarily to elevated nutrient concentrations at the spring vents. Flow from Jenkins Creek Spring contributes to Jenkins Creek, which continues downstream to the Gulf of Mexico. Magnolia–Aripeka Springs Group flows out to a spring run and directly into the Gulf of Mexico. Wilderness–Mud–Salt Springs Group flows into the Mud River and out into the Gulf of Mexico. When the nutrient thresholds established in this report are met, algal growth that contributes to the floral imbalance is expected to be reduced so that algal coverage will be at background levels (< 20 %).

Since the source of elevated nutrients in this system is predominately from spring flow, decreasing the concentration from the springs will also reduce nutrients downstream. Jenkins Creek and Mud River are both Class III marine estuaries. There is no history of impairment for Mud River (WBID 1382H), and Jenkins Creek (WBID 1389A) is listed as impaired for mercury in fish tissue but has no nutrient impairment.

## EPA HIERARCHY 1 REVIEW DOCUMENT - WQS

Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group (WBID 1391B, 1389, and 1382G)/ Springs Coast Basin – Nutrients

The receiving Gulf of Mexico WBIDs are Hernando County (8042) and Pasco/Hernando County (8043), which are listed as impaired for mercury in fish tissue but not for nutrients. Tidal influence in estuarine waterbodies causes increased salinity, and the high salinity of the Gulf typically decreases algal propagation. Reductions in nutrients as prescribed in this TMDL are not expected to cause any nutrient impairments downstream and will result in water quality improvements to downstream waters.

**Assessment:** The H1 is providing use protection for the downstream waters.

### 3. Water Quality Criteria

*Section 131.11(a) provides that states must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.*

Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs are listed as impaired for nutrients based on nitrate concentrations and evidence of ecological imbalance (algal mats). Water quality data collected by the Southwest Florida Water Management District and the FDEP comprised the bulk on the nitrate data used in the assessment for the 2012 Verified list of impaired waters.

The site-specific nutrient criteria are based on a study by Stevenson et al. (2007), which documented the *Lyngbya* filamentous algae growth under a series of nitrate and orthophosphate concentrations, as described in the report (p. 75-77). The study used a freshwater *Lyngbya* species, which was determined to be appropriate for the springs in this report because the springs have freshwater runs with a tidal pressure that causes a salinity barrier. In turn, the fresh water from the spring vent pond in the run creates a longer holding time, thus making the results of the Stevenson et al. (2007) study appropriate for all the spring WBIDs (E. Rasnake at FDEP, personal communication, October 22, 2019).

The Stevenson et al. (2007) study found that the threshold concentration for growth of *Lyngbya* sp. had a saturating nitrate concentration of 0.23 mg/L and a saturating orthophosphate concentration of 0.028 mg/L. The study suggested that nutrient concentrations less than 0.028 mg/L orthophosphate and 0.23 mg/L nitrate are needed to slow the growth of *Lyngbya* sp. Orthophosphate was not considered a target nutrient for the Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs because monitoring data showed a stable temporal trend, and orthophosphate concentrations that remained close to background conditions (0.015 mg/L). Thus, the site-specific nitrate target concentration for Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs is 0.23 mg/L (replacing the existing NNC of 0.35 mg/L nitrate-nitrite).

In the EPA's 2010 Technical Support Document for *U.S. EPA's Final Rule for Numeric Criteria for Nitrogen/Phosphorus Pollution in Florida's Inland Surface Fresh Waters*, the EPA found that nitrate concentration can vary on an inter-annual basis (Brown et al. 2008). To accurately capture this variability, the EPA concluded that the most appropriate approach to characterizing nitrate-nitrite in springs is over an annual averaging basis. The FDEP has applied this rationale to the site-specific criteria for Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs.

## EPA HIERARCHY 1 REVIEW DOCUMENT - WQS

Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group (WBID 1391B, 1389, and 1382G)/ Springs Coast Basin – Nutrients

**Assessment:** The site-specific nutrient criteria for Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs are 0.23 mg/L nitrate expressed as an annual average, not to be exceeded in any year. These criteria are expected to protect the designated uses of the waterbodies by reducing filamentous algae growth. Any other criteria applicable to these waterbodies remain in effect.

### 4. Scientific Defensibility

*Section 131.11(b) provides that, in establishing criteria, states should establish numerical values based on 304(a) guidance, 304(a) guidance modified to reflect site-specific conditions, or other scientifically defensible methods.*

Magnolia-Aripeka Springs Group, Jenkins Creek Spring, and Wilderness-Mud-Salt Springs were listed as impaired for nutrients (algal mats) on the 2012 Verified List of impaired waters.

The nitrate criteria are based on several studies conducted in similar Florida spring systems and laboratories that discuss filamentous algae growth in relation to residence time, salinity, seasonality, and nutrient concentrations. Nitrate and orthophosphate criteria are established to represent conditions where algal coverage was within acceptable ranges of 20% coverage per the numeric nutrient criteria (NNC) for floral imbalance. For all the springs in this report, a nitrate criterion is established at 0.23 mg/L expressed as an annual average, not to be exceeded in any year. Reducing the growth rate of macroalgae (including *Lyngbya* and *Chaetomorpha*) through nutrient reduction will decrease the growth rate and coverage of filamentous algae.

**Assessment:** The EPA determined that the selection of filamentous algal growth coverage as the response variable target is appropriate, and the technical approach to determine nitrate concentrations is scientifically sound. The resulting water quality is expected to protect the designated uses for these waterbodies.

### 5. Public Participation

*Section 131.20(b) provides that states shall hold a public hearing when revising WQS, in accordance with provisions of state law and the EPA's public participation regulation (40 C.F.R. part 25). The proposed WQS revision and supporting analyses shall be made available to the public prior to the hearing.*

A public workshop was conducted by the FDEP on November 17, 2015, in Land O' Lakes, Florida, to obtain comments on the draft nutrient TMDLs for Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group. The workshop notice indicated that the nutrient TMDLs, if adopted, constitute site-specific numeric interpretations of the narrative criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that would replace the otherwise applicable NNC in subsection 62-302.531(2), F.A.C., for these particular waters. The FDEP also held a public hearing on May 14, 2020, in Tallahassee, Florida.

## **EPA HIERARCHY 1 REVIEW DOCUMENT - WQS**

Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group  
(WBID 1391B, 1389, and 1382G)/ Springs Coast Basin – Nutrients

**Assessment:** The FDEP has met the public participation requirements for this H1.

### **6. Certification by the State Attorney General**

*Section 131.6(e) requires that the state provide a certification by the state Attorney General or other appropriate legal authority within the state that the WQS were duly adopted pursuant to state law.*

A letter from the FDEP General Counsel, Justin G. Wolfe, dated January 31, 2020, certified that the Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group TMDLs were duly adopted as WQS pursuant to state law.

**Assessment:** The FDEP has met the requirement for Attorney General certification for this H1.

### **7. Endangered Species Act Section 7 Consultation**

*Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies, in consultation with the Services, to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species.*

The U.S. Fish and Wildlife Service provided concurrence with the EPA’s programmatic consultation on site-specific nutrient criteria for the FDEP on July 21, 2015, for any site-specific nutrient criteria that are more stringent than the existing default nutrient criteria in the state of Florida for the waterbody. Because the site-specific criteria in this report for nitrate in Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group are more stringent than the default criteria, an additional ESA section 7 consultation for this standards action is not required.

**Assessment:** The EPA has met the ESA requirements for this action.



## **EPA HIERARCHY 1 REVIEW DOCUMENT - WQS**

Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group  
(WBID 1391B, 1389, and 1382G)/ Springs Coast Basin – Nutrients

### **II. Conclusion**

The EPA Region 4 Water Division Director is **APPROVING** the H1 NNC addressed by this decision document in accordance with section 303(c) of the CWA, as consistent with the CWA and 40 C.F.R. part 131.

The H1 NNC presented in this decision document will constitute the site-specific numeric interpretation of the narrative nutrient criterion set forth in paragraph 62-302.530(48)(b), F.A.C., that will replace the otherwise applicable numeric criteria for nitrate-nitrite in subsection 62-302.531(2) for this particular water, pursuant to paragraph 62-302.531(2)(a)1.b., F.A.C. Based on the chemical, physical, and biological data presented in the development of the H1 NNC outlined above, the EPA concludes that the revised NNC for nitrate provide for and protect healthy, well-balanced, biological communities in the waters to which the NNC apply and are consistent with the CWA and its implementing regulations at 40 C.F.R. section 131.11.

Therefore, the revised water quality criteria for nitrate for Magnolia–Aripeka Springs Group, Jenkins Creek Spring, and Wilderness–Mud–Salt Springs Group is 0.23 mg/L expressed as an annual arithmetic average not to be exceeded in any year. All other criteria applicable to this waterbody remain in effect. The requirements of paragraph 62-302.530(48)(a), F.A.C. also remain applicable.

The EPA decision document memorializes the EPA's review and approval of the WQS, in accordance with section 303(c) of the CWA; nothing herein should be construed to constitute a review or approval of a TMDL pursuant to section 303(d) of the CWA.